

REMARKS

Applicants wish to thank the Examiner for the thorough examination of this application and the benefit of the further interview on April 6, 2005. It is believed that claims 1-21, as amended, are in condition for allowance as discussed at the interview.

Applicants observe the following: The '948 patent discloses a casting roll surface textured by paralleled grooves and ridges defining V-shaped grooves and ridges with sharp edges. The Office Action states that "Strezov et al. also discloses wherein the texture have surface distribution between 5 and 100 peaks per mm² and an average height of at least 10 microns to 20 microns." Office Action at 3. However, the '948 patent at col. 3, ll. 7-10 states as follows:

"For optimum results it is preferred that the depth of the texture is in the range 15 to 25 microns and the pitch is between 150 and 200 microns. Optimum results have been achieved with rolls in which the depth of the texture is 20 microns and the pitch between adjacent grooves is 80 microns."

Therefore, the statement of the dimensions of a regular pattern of ridges and grooves for "optimum results" does not translate into a random distribution as called for by the presently claimed subject matter. The latest Office Action acknowledges the same in stating that "Strezov et al lacks the disclosure of the random distribution on the rollers." Office Action at 3. Therefore, it appears agreed that the '948 patent discloses casting rolls with a regular pattern of grooves and ridges in a specific size range.

The latest Office Action cites for the first time rely on Tanaka et al. US Patent No. 4,887,662, in view of Strezov et al. '948, in support of a rejection under 35 U.S.C. § 103(a). However, Tanaka et al. '662 discloses various patterns of "dimples." As explained at the interview, the "discrete projections" called for by the claims of the presently claimed subject matter are not "dimples." This was previously considered in connection with the cited Suichi '251 reference, which the Examiner has found to be overcome.

This is evident from a comparison of the ordinary and customary definitions of "dimple" and "projection." "Dimple" is defined in the dictionary, in the present context, as "2: a depression or indentation on any surface...such a depression in a building material (as for the recessing of nailheads)." See Webster's Third International Dictionary (Unabridged) at 634-635 (3rd Edition 1993). By contrast, "projection" is defined, in the present context, as "6a (1): a jutting out or causing to jut out (2): a part that projects or juts out: an extension

beyond something else (~ of earth above its natural level...” Webster’s Third International Dictionary (Unabridged) at 1813 (3rd Edition 1993). The differences between “dimples” of the prior art and the “projections” of the presently claimed subject matter is emphasized by the random height distribution of the “projections” of the presently claimed invention. *See, e.g.,* Figure 6 of the present application.

Applicants respectfully submit, as previously in connection with Suichi ‘251, that these dictionary definitions make certain that a “dimple” cannot be considered to be a “projection.” Applicants do not dispute the combining of the teachings of Strezov et al. ‘948 (which grows out of the same project as the presently claimed subject matter) with Tanaka et al. ‘662 for purposes of a rejection. Applicants do dispute, however, that the combination of the disclosures of Strezov et al. and Tanaka et al. suggests the claimed subject matter of the present invention. Strezov et al. teaches that the casting roll surfaces must be textured with a regular defined pattern of V-shaped grooves and ridges, and the substitution of the “dimples disposed uniformly thereon” of Tanaka et al. still fails to disclose, or even suggest, the present claimed invention. Indeed, Tanaka et al. explains:

Numerous dimples 11 not in contact with each other are uniformly and densely disposed on the surface of the cooling drums 2 to be in contact with the molten metal in the liquid metal pool 3, the dimples 11 having a circular opening portion with a diameter of from 0.1 to 1.2 mm and a depth of from 5 to 100 μ m. **The dimples 11 with the circular opening portion have no corners in the a plan view of the drum surface by which cracks are generated, in contrast with dimples having a linear, a rectangular, or a flat opening portion.** Oval opening portions also may be used instead of the circular portions. The oval shaped opening portion preferably has a minor-to-major diameter ratio of 0.6 or greater. The minor and the major diameters are both within the range of from 0.1 to 1.2 mm. The term ‘diameter’ used throughout the specification denotes both the ‘minor diameter’ and the ‘major diameter.’”

Col. 3, ll. 52-67 (emphasis added).

By contrast, this teaching is directly contrary to the teachings of the presently claimed matter. Thus, combining Strezov et al. with Tanaka et al. is evidence of **non-obviousness**.

Claims 6 and 7 are rejected under § 103 for obviousness over Strezov et al. in view of Tanaka et al. ‘662 in view of Irie ‘084. It is quite unclear what is relevant to the present claims in the disclosure of the ‘084 patent. The ‘084 claims a method of producing

cold rolled sheet steel having a notably excellent formability of a particular composition, hot rolling the steel at a total reduction of not less than 90%, finish rolling the steel at a rolling speed of not less than 40 meters per minute and finishing temperature of not lower than 830°C, coiling the hot rolled strip at a temperature of 600-800°C, cold rolling the coiled strip to obtain a cold rolled strip having final gauge and then continuously annealing the cold rolled strip within the temperature range of 700-900°C for ten seconds-five minutes. The '084 patent does not appear to have any relevance to textures on casting roll surfaces in strip casting.

Claims 11-19 are rejected under § 103 over Strezov et al. '948 in view of Tanaka '662 in view of JP '751. JP '751 is cited because it discloses utilizing shot blasting to form an inner layer 9 to provide good hot transmission properties between the outer layer 13 and the inner layer 9. Translation at 5, ll. 15-17¹. The method of forming the outer layer 13 is not specified, and the outer layer 13 can be readily formed of Ni-plating or Cr-plating or Ni+Cr-plating. The inner layer 9 has a polished surface after the completion of the plating. *Id.* at ll. 4-8. In any case, JP '751 teaches that "the outer surface of the outer layer 13 is **finished smoothly**, the degree of smoothness is preferably for example, the same as the level of smoothness of a normal cold rolling mill." *Id.* at ll. 9-11 (emphasis added).

JP '751 therefore teaches directly contrary to claims 11-19 which directs that the randomly distributed pattern of discrete peaks is formed by grit blasting and then **covered** by a protective coating "**such that the casting surface shows the random distribution texture of discrete projections.**" Again, this reference is evidence of **non-obviousness** of the presently claimed subject.

The Office Action states that it would be obvious "to provide shot blasting or electroplating method and covered by a protective coating as taught by JP '751, in Strezov et al. and Tanaka because a smooth surface on the slab is necessary as the final product." Office Action at 4. This statement is a *non-sequitur* as it relates to claims 11-19 where there is random distribution of discrete projections (not dimples) in the presently claimed subject matter with a protective coating such that the casting surface shows the random distribution texture of the discrete projections.

Claims 20-21 are rejected under § 103 for obviousness over Strezov et al. '948 in view of Tanaka et al. '662 in view of JP '751 in view of JP '547. This rejection is

¹ A copy of the translation of JP '751 was previously submitted.

traversed for all the reasons noted above. JP '547 is remote prior art. It is directed to the inner mold of a continuous slab casting machine where the inner surface of the mold is formed of **cobalt-molybdenum-copper** alloy. There is no disclosure or suggestion of utilizing a **nickel-chromium-molybdenum** alloy layer to form the mold surface as taught by claims 20 and 21.

Applicants respectfully submit that pending claims 1-21, as presently amended, are in condition for allowance. If the Examiner has any further questions or concerns, applicant respectfully requests that the Examiner telephone applicants' counsel, Arland T. Stein, Esq., at (317) 231-7390.

Respectfully submitted,

By: Arland T. Stein
Arland T. Stein
Reg. No. 25,062

11 S. Meridian Street
Indianapolis, Indiana 46204
Telephone: (317) 231-7390